THE CLAIMS:

1. (Previously Amended) In a Foreign Agent, a method of registering a mobile device with a Home Agent in an asymmetric link environment, the method comprising:

associating each one of a plurality of interfaces of the Foreign Agent with a different care-of address such each of the plurality of interfaces is mapped to a different care-of address;

sending at least one agent advertisement including the care-of address for each of the plurality of interfaces of the Foreign Agent via one or more uplinks;

receiving a registration request forwarded via a downlink router, the registration request identifying a care-of address associated with only one of the plurality of interfaces of the Foreign Agent;

ascertaining the one of the plurality of interfaces identified by the care-of address in the registration request, thereby identifying the interface to which the mobile device has roamed;

forwarding the registration request to the Home Agent;

receiving a registration reply from the Home Agent; and

forwarding the registration reply to the mobile device via the ascertained interface.

2. (Currently Amended) The ~~method~~ Foreign Agent as recited in claim 22 ~~1~~, wherein the mobile device is a mobile router supporting Mobile IP.

3. (Currently Amended) The ~~method~~ Foreign Agent as recited in claim 22 ~~1~~, wherein the mobile device is a mobile node supporting Mobile IP.

4. (Currently Amended) The ~~method~~ Foreign Agent as recited in claim 22 ~~1~~, wherein the downlink router is a Foreign Agent.

5. (Currently Amended) The ~~method~~ Foreign Agent as recited in claim 22 ~~1~~, wherein the asymmetric link environment includes one or more satellites.

6. (Original) The method as recited in claim 1, wherein the registration request further includes an extension including a source MAC address of the mobile device.

7. (Original) The method as recited in claim 6, wherein the registration reply includes a destination MAC address that is the source MAC address of the mobile device.

8. (Original) The method as recited in claim 1, wherein the registration request includes a destination IP address field having a value of the care-of address from the agent advertisement.

9. (Original) The method as recited in claim 1, further comprising:
entering the registration request in a pending registration request list; and
updating the pending registration request list when the registration reply is received from the Home Agent.

10. (Original) The method as recited in claim 1, further comprising:
marking the registration request as having been received on the interface advertising the care-of address.

11. (Original) The method as recited in claim 10, wherein marking the registration request as having been received on the interface advertising the care-of address comprises:
updating a pending registration request list to indicate that the registration request has been received on the interface advertising the care-of address.

12. (Original) The method as recited in claim 1, wherein the registration reply includes a destination MAC address that is a broadcast address.

13. (Original) The method as recited in claim 1, wherein the registration reply includes a destination MAC address that is a multicast address.

14. (Previously Amended) In a downlink router, a method of forwarding a Mobile IP registration request in an asymmetric link environment, the method comprising:
receiving a registration request composed and sent by a mobile device, the registration

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request identifying a care-of address associated with only one of a plurality of interfaces of a Foreign Agent, wherein each of the plurality of interfaces of the Foreign Agent has a different care-of address;

forwarding the registration request to the Foreign Agent, thereby enabling the Foreign Agent to process the registration request and forward a registration reply to the mobile device via the interface.

15.   (Previously Amended)   The method as recited in claim 14, wherein the mobile device includes a router.

16.   (Previously Amended)   The method as recited in claim 14, wherein the mobile device is a mobile node supporting Mobile IP.

17.   (Original)   The method as recited in claim 14, wherein the registration request includes a time to live field having a value that is greater than one.

18.   (Original)   The method as recited in claim 14, wherein the downlink router is a Foreign Agent.

19.   (Original)   The method as recited in claim 14, wherein the asymmetric link environment includes one or more satellites.

20.   (Original)   The method as recited in claim 14, wherein the registration request further includes an extension including a source MAC address of the mobile device.

21.   (Currently Amended) The method as recited in claim 14, wherein ~~eh~~ the registration request includes a destination IP address field having a value of the care-of address.

22.   (Currently Amended) A Foreign Agent that supports Mobile IP, the Foreign Agent being capable of registering a mobile device with a Home Agent in an asymmetric link environment, the Foreign Agent comprising:

a processor; and

a memory, at least one of the processor or ~~and~~ the memory being adapted for:

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associating each one of a plurality of interfaces of the Foreign Agent with a different care-of address such that each of the plurality of interfaces is mapped to a different care-of address;

sending at least one agent advertisement including the care-of address for each of the plurality of interfaces of the Foreign Agent via one or more uplinks;

receiving a registration request forwarded via a downlink router, the registration request identifying a care-of address associated with only one of the plurality of interfaces of the Foreign Agent;

ascertaining the one of the plurality of interfaces identified by the care-of address in the registration request, thereby identifying the interface to which the mobile device has roamed;

forwarding the registration request to the Home Agent;

receiving a registration reply from the Home Agent; and

forwarding the registration reply to the mobile device via the ascertained interface.

23.   (Previously Amended)   A computer-readable medium, the computer-readable medium being adapted for enabling a Foreign Agent that supports Mobile IP to register a mobile device with a Home Agent in an asymmetric link environment, comprising:

instructions for associating each one of a plurality of interfaces of the Foreign Agent with a different care-of address such that each of the plurality of interfaces is mapped to a different care-of address;

instructions for sending at least one agent advertisement including the care-of address for each of the plurality of interfaces of the Foreign Agent via one or more uplinks;

instructions for receiving a registration request forwarded via a downlink router, the registration request identifying a care-of address associated with only one of the plurality of interfaces of the Foreign Agent;

instructions for ascertaining the one of the plurality of interfaces identified by the care-of address in the registration request, thereby identifying the interface to which the mobile devices has roamed;

instructions for forwarding the registration request to the Home Agent;

instructions for receiving a registration reply from the Home Agent; and

instructions for forwarding the registration reply to the mobile device via the ascertained interface.

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24.   (Previously Amended)   A Foreign Agent that supports Mobile IP, the Foreign
Agent being capable of registering a mobile device with a Home Agent in an asymmetric link
environment, the Foreign Agent comprising:

   means for associating each one of a plurality of interfaces of the Foreign Agent with a
different care-of address such that each of the plurality of interfaces is mapped to a different
care-of address;

   means for sending at least one agent advertisement including the care-of address for
each of the plurality of interfaces of the Foreign Agent via one or more uplinks;

   means for receiving a registration request forwarded via a downlink router, the
registration request identifying a care-of address associated with only one of the plurality of
interfaces of the Foreign Agent;

   means for ascertaining the one of the plurality of interfaces identified by the care-of
address in the registration request, thereby identifying the interface to which the mobile
device has roamed;

   means for forwarding the registration request to the Home Agent;

   means for receiving a registration reply from the Home Agent; and

   means for forwarding the registration reply to the mobile device via the ascertained
interface.

25.   (Previously Presented)   The method as recited in claim 14, wherein the
registration request is sent using a destination MAC address that is a broadcast or multicast
MAC address.

26.   (Previously Presented)   The method as recited in claim 1, wherein each of the
plurality of interfaces has been assigned a different care-of address.

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27. (Previously Presented)   The method as recited in claim 14, wherein each of the plurality of interfaces has been assigned a different care-of address.